

Serial No. 10/712,093  
Reply to Office Action dated December 29, 2006

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REMARKS

Claim 1 is amended herewith to restore text that was inadvertently omitted in the previous version of the claim.

Rejections Under 35 U.S.C. §103

Claims 1, 2, 4-6, 8, 9, 11-13 are rejected under 35 U.S.C. § 103 as being obvious over US 2002/0084464, to Yamazaki, *et al.*, in view of US 6,117,567, to Andersson, *et al.* The rejection is traversed.

Claims 1 and 8 are limited to the small molecule material and the light emissive polymer (LEP) to pairs that capable of forming an efficient exciplex which renders the device capable of white light emission.

US 2002/0084464 (Yamazaki) relates to methods and structures for reducing deterioration of organic light emitting devices (Abstract). FIG. 11 B illustrates a structure capable of emitting light by phosphorescence, that is, from a triplet excitation state (paragraph 0101.) The structure includes a hole blocking layer 514 composed of bathocuprine (BCP) disposed on a light emitting layer 513 composed of 4,4'-N,N'-dicarbazole-biphenyl (CBP) and tris-(2-phenylpyridine)iridium (Ir(ppy)<sub>3</sub>).

US 6,117,567 (Andersson) relates to a light emitting polymer diode device wherein the color emitted is controlled by the voltage applied (Abstract). The problem solved by the invention is that of obtaining light of different colors from one individual polymer LED (col. 1, lines 63-65). The devices contain a blend of conjugated substituted thiophene polymers (col. 43-62) with a non-conjugated polymer (col. 4, lines 37-57) wherein the non-conjugated polymer prevents exciton transfer among the conjugated polymers (col. 4, lines 26-29, 51). In a Background section of the patent, a paper entitled "Blue electroluminescent diodes utilizing poly(alkylfluorene)" is cited as an example of a conjugated polymer used in electroluminescent polymer diodes that do not produce different colors from an individual device (col. 1, lines 11-12, 45-47 and 63-65). Example 8 discloses a device that includes a layer of 2-(4-biphenylyl)-5-(4-t-butylphenyl)1,3,4-oxadiazole (PBD) disposed on a light emitting layer composed of a

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blend of three polythiophenes, PTOPT, PCHT and PCHMT, with polymethyl methacrylate.

The Office action states that it would have been obvious to one of ordinary skill in the art to incorporate the use of a polymer, as disclosed by Andersson, into the Yamaki device "in order to more reliably form the light emitting layer" (page 3). With respect, Applicants submit that this assertion regarding motivation to combine elements disclosed in the references is completely unsupported by any teaching or suggestion in either reference.

Furthermore, claims 1 and 8 and their dependent claims require that the small molecule material and the light emissive polymer be capable of forming an exciplex. As both of the references are completely silent regarding formation of an exciplex, there can be no basis in the cited art for modifying one or the other to result in the claimed invention. It appears that Applicants' own disclosure of their invention has been used as a blueprint to construct an obviousness rejection by hindsight, although the courts and the PTO Board of Appeals have cautioned against this temptation on numerous occasions. In the present case, Yamaki teaches use of a small molecule material in an OLED device and Andersson lists publications describing light-emitting polymers for use in OLED devices; neither says anything about exciplex formation in general, or about exciplex formation from a light-emitting polymer and a hole blocking/electron transporting small molecule material in adjacent layer in particular. Accordingly, Applicants submit that claims 1 and 8 and dependent claims 2, 4-6, 9, 11-13 are not obvious in view of the cited references. It is believed that the rejection is hereby overcome.

Claims 3 and 10 are rejected under 35 U.S.C. §103 as being obvious over US 2002/0084464, to Yamazaki, *et al.*, and US 6,117,567, to Andersson, *et al.*, and further in view of US 2002/0113545, to Adachi, *et al.* Claims 7 and 14 are rejected under 35 U.S.C. §103 as being obvious over US 2002/0084464, to Yamazaki, *et al.*, and US 6,117,567, to Andersson, *et al.*, and further in view of US 2001/0002703, to Koyama. The rejection is traversed.

The deficiencies of the Yamazaki and Andersson references are discussed above. As neither of the tertiary references mention exciplex formation, they cannot

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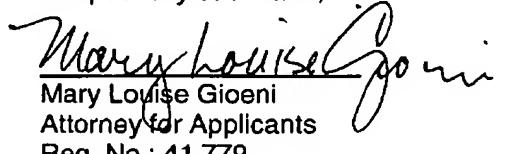
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provide the deficiency. Therefore, Applicants submit that the claims are not obvious in view of the combination of references. It is believed that the rejection is hereby overcome.

Applicants submit that the pending claims are patentable over the cited art. Favorable reconsideration and allowance of the claims under consideration are respectfully requested.

Respectfully submitted,

  
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